

REMARKS
ON THE
NATURAL HISTORY OF RHEUMATIC
FEVER.

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IN this paper we are desirous of bringing under the notice of the profession the particulars of a few more cases of rheumatic fever which have been treated by mint-water, or, in other words, by absolute rest and regulated diet, unaided by medicine.

In our previous reports on this subject (recorded in the ‘Guy’s Hospital Reports’) we have endeavoured to show what is the natural course of rheumatic fever.

We have, moreover, shown what is the class of case that tends to do well, to recover more quickly than any other class, and have further pointed out what class of case does not tend to recover quickly, but becomes protracted and very liable to relapse.

We are now desirous of pointing out what appears to be

the natural course of rheumatic fever with reference to the heart; to show in what proportion of cases the heart has become diseased when the patients were treated by mint-water; and to consider if there be any evidence to prove that the heart is more frequently involved where cases are treated by mint-water, or where treated by alkalies, lemon-juice, or by the application of blisters to the joints.

This report is based on twenty-five cases of rheumatic fever, all of which have been carefully watched by one of us.

Four of these cases were under the care of Dr. George Owen Rees, in Guy's Hospital (*vide* 'Guy's Hospital Reports,' vol. xi, third series, 1865); eight of the cases occurred in the same hospital under the care of Drs. Barlow, Rees, and Gull (*vide* 'Guy's Hospital Reports,' vol. xii, third series, 1866); and the remaining thirteen cases have occurred in the London Hospital. The thirteen patients were admitted into the London Hospital under the care of Dr. Herbert Davies, Dr. Andrew Clarke, and Dr. Ramskill. They were, however, subsequently transferred to the care of Dr. H. G. Sutton, who here begs to acknowledge the kindness and liberality of his colleagues, and to mention that Drs. Davies, Clarke, and Ramskill have at all times most generously allowed him to make use of their cases.

Twelve of these twenty-five cases have been already recorded in the 'Guy's Hospital Reports;'¹ it is therefore only necessary to give the clinical particulars of the remaining thirteen cases.

Of these 25 cases, 18 were females and 7 were males.

The ages of these patients were as follows:—The youngest was twelve years old and the oldest was twenty-five years. The average age was nineteen years. No objection could therefore be raised against the cases on account of age, for experience has shown that persons under twenty suffering from rheumatic fever are very liable to have heart affection, and that females, to a greater extent than males, are exposed to this complication.

¹ Vol. xii, 3rd series, 1866; *vide* cases 1, 2, 3, 5, 7, 8. Vol. xi, 1865; *vide* Dr. G. O. Rees' cases 1, 3, 4, also Dr. Gull's cases 1, 2, males, and 8, females.

We may now be permitted to record the particulars of the following thirteen cases.

CASE 1.—Emma L—, æt. 17, was admitted into the London Hospital December 20th, 1867. Her illness commenced eight days before admission with pain in all her limbs. This was her first attack of rheumatic fever. On admission she had a good deal of pain in several joints. The temperature in the axilla was 104, pulse 144, respiration 44.

On the second day of admission the pain continued; she perspired profusely, and the rheumatic odour was well marked. The temperature was 103·2, pulse 124, and respiration 40.

On the third day, the 22nd December, the temperature was 102·6 in the morning. Pulse 138. Respiration 44.

103·5 „ evening. „ 132. „ 36.

23rd.—Fourth day of admission, had pain in the chest, otherwise free; could turn in bed without any difficulty; tongue almost clean; perspired freely; urine clear, acid.

Temperature 101·8 morning. Pulse 120. Respiration 20.

„ 102· evening. „ 138. „ —

24th, 5th day, 102·4 morning. „ 120. „ 36.

25th, 6th day, 99·2 morning. „ 120. „ 36.

„ 100· evening. „ 100. „ 32.

26th, 7th day, 98·4 „ 100. „ 36.

27th, 8th day, 98· „ 100. „ 32.

28th, 9th day, 97· „ 90. „ 24.

29th, 10th day, 97· „ 80. „ —

On the seventh day from admission, and the fifteenth of her illness, the temperature was normal; the pulse varied from 92—100, respiration from 22—36.

On the eleventh day, and nineteenth day of her illness, the temperature had remained normal for four days. Her pulse was 80, and the respiration had fallen to 24. She was in no pain, and her tongue was clean, and she continued from this time to do well. The acute symptoms are calculated to have terminated on the eleventh day, but the temperature was normal on the seventh day, and continued so from that day,

and this might be considered as the termination of the acute symptoms. The patient was not, however, entirely free from pain until the eleventh day, and the acute symptoms, therefore, are estimated to have ceased on the eleventh day. The total duration of her symptoms, dating from the time that her illness commenced, that is, eight days before admission, to the cessation of acute symptoms, was ten days.

Heart.—The heart's action was rapid and the impulse beat was unduly marked, but there was no abnormal sound throughout her illness.

CASE 2.—Catherine C—, æt. 24, admitted into the London Hospital December 28th, 1867. This was her first attack of rheumatic fever. Her illness commenced five days before admission with pain in the left foot. She was very thirsty and had lost her appetite. On admission she complained of pain in her feet and knees. Her joints were somewhat swollen, hot, and red; her tongue was white; her appetite was bad; her face flushed and her throat was sore; pharynx, congested, but there was no ulceration. The temperature was 102·4, pulse 120, respiration 36. Ordered diet of milk and beef-tea, and an ounce of mint-water three times a day.

On the 29th, the second day of admission, had slept pretty well. Pain in the right wrist in addition to the joints previously affected. Temperature 101, pulse 116, respiration 27. Ordered ten grains of Dover's powder at bedtime.

30th.—Third day. Slept well. Pain in left shoulder, also a little pain in right knee and ankle; perspiring. Urine, sp. gr. 1030, slightly acid.

Temperature	100·5 morning.	Pulse	100.	Respiration	40.
"	101·6 evening.	"	104.	"	32.
31st, 4th day	100·4 morning.	"	100.	"	24.
"	102·5 evening.	"	112.	"	36.

January 1st.—Fifth day, she was in much less pain.

Temperature	100·2 morning.	Pulse	104.		
"	100·6 evening.	"	108.		
2nd, 6th day,	100·2	"	92.		
3rd, 7th day,	99·2	"	84.	Respiration	24.

She was completely free from pain, excepting a little in the left shoulder-joint, but so little that she could move her arm freely; her tongue was clean and moist, and she did not perspire so much. Her pulse was normal, having fallen from 120 to 72; her respirations from 36 to 20. The temperature had fallen from 102 to 99·2 and 99·5; it was therefore almost normal.

6th.—On the tenth day the temperature was 98·4, pulse 72, respiration 20. On the eleventh day of admission the temperature was 98·4, pulse 60, respiration 20. The temperature was carefully taken during the five following days, and it never exceeded 98·5. The acute symptoms are calculated to have ended on the eleventh day. The total duration of her acute symptoms, including the five days before admission, was sixteen days. She was discharged February 7th.

Heart.—On the day of admission the cardiac dulness was normal; over both apex and base the first sound was prolonged. On the third day the first sound was still prolonged. On the fifth day it was prolonged. On the seventh day there was a well-marked systolic bruit over the third interspace close to the sternum; and the first sound was prolonged at the apex. On the ninth day the cardiac dulness was normal, and a feebly marked systolic bruit was heard over the base; the first sound at the apex was prolonged. On the seventeenth day the murmur was still faintly heard.

February 1st.—On the thirty-second day the cardiac dulness was normal, action quiet, and there was no abnormal sound.

CASE 3.—Alfred W—, æt. 17, was admitted into the London Hospital October 25th, 1867. This was his first attack of rheumatic fever. His illness commenced six days before admission with pain and swelling in his left knee and ankle, and with thirst and loss of appetite. On admission he complained of great pain in his joints; his face was flushed, and he was very thirsty. The temperature in axilla was 102·4, pulse 92, respiration 28.

On the second day of admission he could not turn in bed; there was great pain in the right ankle and in the wrists.

He complained of sore throat, and some cheesy deposits were noticed on the tonsils. Temperature was 100, pulse 104, respiration 36. An ounce of mint-water every four hours was ordered, and milk and beef-tea for diet.

On the 27th, the third day, he could not move in bed on account of the pain in his joints. Tongue was dry in the centre; urine acid, sp. gr. 1025; passed fifty ounces in twenty-four hours. Temperature 102·8 morning, 102·4 evening; pulse 80, respiration 28.

On 28th, fourth day, pain, redness, and a little swelling in wrists, right knee, and ankle. Temperature 102·4 morning, 102 evening.

On 29th, fifth day, temperature 102 morning, 101 evening.

On 30th, sixth day, not in so much pain; sweating; rheumatic odour strongly marked. Temperature 101 morning, 104 evening. Ordered half a grain of opium every four hours during the night only.

On 31st, seventh day, he had slept better, sweating profusely. Temperature 100·8 morning, 101 evening. He was ordered half a grain of opium night and morning.

November 1st, felt better; in less pain; tongue clean; urine, passed thirty-five ounces in twenty-four hours, acid, sp. gr. 1020. Temperature 100 morning and evening.

2nd, ninth day, temperature 98·6 morning, 99·2 evening. Felt better, in much less pain.

3rd, tenth day, temperature 99 morning, 99·8 evening.

4th, eleventh day, temperature was normal, 98·4 morning, 98·5 evening.

5th, twelfth day, free from pain; tongue clean; urine acid, natural colour, passed thirty-five ounces in twenty-four hours, sp. gr. 1018.

8th.—On the fifteenth day he was out of bed, free from pain; appetite good; and placed on middle diet.

The acute symptoms had very greatly subsided on ninth day, and they continued to do so, and on the twelfth day they had completely subsided. The total duration of the acute symptoms, including the six days before admission, was eighteen days.

On the twentieth day he had continued to do well, and was free from pain. Discharged December 3rd, on the fortieth day.

Condition of the heart.—On the day of admission the apex impulse was unduly marked, there was no murmur, and the cardiac dulness was normal. On the 27th, the third day, the first sound was markedly prolonged under the left nipple. Over the third left costal cartilage it was so prolonged that it might fairly be called a slight systolic bruit. Cardiac dulness extended to the third rib; impulse was unduly marked. On the fifth day heart in same condition. On the eighth day the bruit was still heard at the base and also at the apex, but loudest at the base. On the twelfth day the rhythm was irregular and the bruit was still heard. On the fifteenth day the bruit was doubtful. December 3rd, when discharged, his heart was carefully examined; there was no abnormal sound; the cardiac dulness was normal; the apex beat was in its normal position. The heart was, therefore, as far as could be appreciated, healthy.

CASE 4.—George M—, æt. 13, admitted into the London Hospital January 17th, 1868. This was his first attack of rheumatic fever. His illness commenced five days before admission with pain in his feet; his joints were swollen; he was thirsty and sweated a good deal. On the day of admission the rheumatic odour was well marked. He was thirsty, his appetite was bad, and there was pain and redness of his shoulder-joints and hands. His urine was acid, the specific gravity 1030; temperature 100·6, pulse 80, respiration 28. On the second day of admission, the temperature had fallen to 98·8. On the third day he was free from pain, his tongue was moist and slightly coated. On the 4th day he was much better and in no pain, but the joints were a little stiff. The acute symptoms had entirely subsided on the fourth day, and it might be said on the third day.

The condition of the heart.—The total duration of the acute symptoms, including the five days before admission, was nine days. There was a systolic, apparently an aortic, bruit

over the heart on admission, which remained when the patient was discharged.

CASE 5.—Rebecca D—, æt. 18, admitted into the London Hospital January 28th, 1868. This was her first attack of rheumatic fever. Her illness commenced one day before admission with pain in the feet. On the day of admission her wrists were red and swollen, as well as the ankles. She perspired profusely. Her cheeks were flushed, and she was very thirsty. The urine was acid, and the specific gravity was 1030. The temperature 102·2, her pulse 120, respiration 28.

On the 29th, second day of admission, the temperature was 102·2 in the morning. Pulse 114. Respiration 28.

101·8 in the evening. „ 124. „ 32.

30th, the third day of admission, the temperature was 102·6 in the morning. Pulse 124. Respiration 40.

102·6 in the evening. „ 128. „ 36.

31st, the fourth day of admission, the temperature was 102 in the morning. Pulse 116. Respiration 32.

102·4 in the evening. „ 120. „ 32.

February 1st, the fifth day, the temperature was

102·6 in the morning. Pulse 112. Respiration 32.

101·2 in the evening. „ 112. „ 28.

Pain and redness in the left wrist, but nowhere else. Skin perspiring and covered with miliaria.

2nd, the sixth day, pain in right wrist; urine faintly acid, sp. gr. 1014; temperature was

101·4 in the morning. Pulse 96. Respiration 28.

101·2 in the evening. „ 92. „ 30.

3rd, the seventh day, sweated profusely, copious miliaria, pain in wrist only; urine was neutral, sp. gr. 1010, contained lithates; temperature was

102 in the morning. Pulse 88. Respiration 24.

101·6 in the evening. „ 100. „ 28.

4th, the eighth day, the temperature was

99·2 in the morning. Pulse 80. Respiration 20.

99 in the evening. „ 72. „ 28.

5th, the ninth day, the temperature was

99 in the morning. Pulse 84. Respiration 24.

100 in the evening. „ 88. „ 24.

6th, the tenth day, the temperature was

99.2 in the morning. Pulse 80. Respiration 24.

99.4 in the evening. „ 88. „ 28.

7th, the eleventh day, the temperature was

98.6 in the morning. Pulse 88. Respiration 26.

98.6 in the evening. „ 88. „ 24.

On the 4th she was in no pain, appetite was good, tongue was almost clean. Urine acid, sp. gr. 1015. Judging from these symptoms and the temperature, the acute symptoms appear to have ended on this day, *i.e.* the eighth day of admission. On the eleventh day she was quite convalescent; temperature normal. The total duration of the acute symptoms, including the day she was ill before admission, was nine days. She continued to do well and was discharged.

State of the heart.—On the day of admission there was diminished resonance as high as the second interspace; marked dulness as high as the third rib, and the dulness was bounded below by the fifth interspace; the apex beat was unduly marked in the fourth interspace, and a little to the right of the nipple. In the third left interspace, close to the sternum, the first sound was prolonged, and at the apex also. On the fourth day of admission the first sound over the base of the heart resembled a faint bruit. On the fifth day it was a decided bruit, audible both at the base and apex. On the fourteenth day a systolic bruit was heard over the apex accompanied by a thrill; and when the patient was discharged the systolic bruit over the apex remained.

CASE 6.—Elizabeth W—, æt. 14, admitted into the London Hospital August 22nd, 1867. Her first attack of rheumatic fever. Suffered with an aching sensation in her leg fourteen days before admission; seven days before admission she had pains in the legs and hands. Two days afterwards she was laid up with pain and swelling in ankles and knees, and she remained in much the same state until she entered the

hospital. On the day of admission she had pain, redness, and some swelling, in her ankles and knees. Slight pain in the arms, tongue furred. Temperature was 102·4, pulse 120, respiration 36. Ordered one ounce of mint-water every four hours, five grains of Dover's powder every night at bed-time. Diet milk and beef-tea.

23rd, on the second day, the temperature was

101·6 in the morning. Pulse 116. Respiration 36.

103·6 in the evening. „ 116. „ 44.

24th, third day, the temperature was

100·6 in the morning. Pulse 104. Respiration 36.

101·4 in the evening. „ 104. „ 44.

The Dover's powder was discontinued.

25th, fourth day, pain and swelling in the left wrist; perspiring; temperature 100, pulse 92, respiration 34.

26th, fifth day, not in so much pain; temperature 99, pulse 84, respiration 26.

27th, sixth day, free from pain; temperature 98, pulse 72, respiration 32.

28th, seventh day, in no pain; appetite good; tongue clean; skin cool, and not perspiring. The acute symptoms terminated on the sixth day. The total duration of acute symptoms, including the seven days before admission, were thirteen days. She was discharged on September 20th.

State of heart.—On the day of admission there was absolute dulness as high as the upper margin of the left third rib, and diminished resonance as high as the second left costal cartilage. The area of dulness was oval-shaped. It was bounded on the left by a vertical line through the nipple, and on the right by the left margin of the sternum, and below by the fifth rib. The first sound over the apex of the heart was short and sharp. Over the third left costal cartilage it was prolonged, and over the second left costal cartilage it was a decided but feeble systolic bruit; it was only heard over this spot. No thrill could be felt. On the third day of admission the bruit was heard all over the base of the heart. Cardiac dulness the same as before. On the fourth day the apex beat was unduly marked in the fourth and fifth inter-

spaces, and the systolic bruit was very distinctly heard over the second interspace, louder on the left than on the right. The bruit was not heard at the apex, and not conducted along the aorta. On the seventh day of admission there was a faint systolic bruit over the left second interspace, close to the sternum. The bruit was very localized, and not so distinctly heard as it was three days ago. On the twentieth day of admission there was still a slight systolic bruit over the base. Heart otherwise healthy. On the twenty-third the heart was normal, excepting that there was still heard a faint systolic bruit. It was more like a prolonged first sound than a bruit. When discharged, this abnormal character of first sound was faint and not well marked.

CASE 7.—Mary Anne N—, æt. 21. Admitted into the London Hospital December 24th, 1867. Her first attack of rheumatic fever. Good health until twelve days before admission. At that time was seized with pain and swelling in her wrists and shoulders. Eight days before admission was obliged to go to bed, not able to stand on account of the pain in her legs, and was confined to bed until the day she was admitted into the hospital. On the day of admission she had pain in her knees, shoulders, and wrists. Her tongue was coated with yellow fur; her face was flushed, and she perspired freely. Temperature was 101·6, pulse 124, respiration 28. Ordered diet of milk, beef-tea, and lemonade; and an ounce of mint-water three times a day.

25th, the second day of admission, the temperature was
100·4 in the morning. Pulse 112. Respiration 24.
101 in the evening. „ 112. „ 28.

26th, the third day, the temperature was
100·8 in the morning. Pulse 108. Respiration 20.
101·2 in the evening. „ 108. „ 28.
Complained of pain in the chest and sore throat. Sibilant respiration heard over front of the chest.

27th, the fourth day, pain in left knee, shoulder, and wrist. Sweated freely. Rheumatic odour was well marked.

Temperature was

99·4 in the morning. Pulse 108. Respiration 28.

101 in the evening. „ 108. „ 28.

Ordered linseed-meal poultice to be applied to the chest.

28th, the fifth day, ordered half an ounce of castor oil to be taken immediately, and a quarter of a grain of morphia at bedtime. Temperature was

99 in the morning. Pulse 104. Respiration 24.

99·8 in the evening. „ 108. „ 28.

29th, sixth day, pain equally severe in left shoulder and right knee as it was three days ago. Tongue was clean, appetite much better; perspired freely; temperature was

100 in the morning. Pulse 104. Respiration 24.

98·4 in the evening. „ 108. „ 24.

31st, eighth day, she was in no pain excepting in the left shoulder; temperature was

100·2 in the morning. Pulse 104. Respiration 24.

100·6 in the evening. „ 108. „ 24.

January 1st, ninth day, temperature was

99 in the morning. Pulse 88. Respiration 16.

101 in the evening. „ 96. „ 20.

2nd, tenth day, temperature was

98·5 in the morning. Pulse 104. Respiration 24.

100·2 in the evening. „ 96. „ 24.

3rd, eleventh day, temperature was

100·4 in the evening. Pulse 92. Respiration 20.

Free from pain.

4th, the twelfth day, temperature was

98·8 in the morning. Pulse 88. Respiration 18.

99·5 in the evening. „ 96. „ 24.

5th, thirteenth day, temperature was

98·4 in the morning. Pulse 80. Respiration 24.

99·5 in the evening. „ 80. „ 24.

6th, fourteenth day, temperature was

98·4 in the morning. Pulse 80. Respiration 24.

99·5 in the evening. „ 84. „ 28.

7th, fifteenth day, temperature was

98·8 in the morning. Pulse 76. Respiration 24.

100 in the evening. „ 92. „ 20.

8th, sixteenth day, temperature was

98·6 in the morning. Pulse 72. Respiration 24.

99·2 in the evening. „ 88. „ 20.

9th, seventeenth day, temperature was

99·0 in the morning. Pulse 72. Respiration 24.

99·0 in the evening. „ 68. „ 24.

10th, eighteenth day, the temperature was

99·0 in the morning. Pulse 68. Respiration 24.

99·0 in the evening. „ 80. „ 24.

11th, nineteenth day, temperature was

98·4 in the morning. Pulse 80. Respiration 24.

98·2 in the evening. „ 78. „ 24.

12th, twentieth day, temperature was

98·0 in the morning. Pulse 68. Respiration 24.

98·6 in the evening. „ 84. „ 20.

13th, twenty-first day, temperature was

98·0 in the morning. Pulse 72. Respiration 24.

98·6 in the evening. „ 88. „ 24.

14th, twenty-second day, temperature was 98·0, pulse 72, respiration 24, and she was out of bed, doing well.

In this case the temperature was normal or almost normal, not exceeding 99·5 on the twelfth day.

On fifteenth day it was normal in the morning and 100 in the evening. On sixteenth day it was normal, and remained so.

We may, therefore, perhaps, fairly conclude that this patient was convalescent on fifteenth day, and it is to be noticed that she was totally free from pain on eleventh day, and continued free from it. The total duration of acute symptoms, including the twelve days before admission, was twenty-eight days.

Condition of the heart.—On admission cardiac dulness was normal, apex impulse unduly marked; there was a systolic bruit over the third left interspace, close to the sternum. The bruit was not conducted along the aorta. On 22nd, fourth day, cardiac dulness extended as high as the second left costal cartilage; oval-shaped. Bruit the same as before.

29th, sixth day, heart in the same condition. Thirteenth day, cardiac dulness was normal, and no bruit was heard.

On twenty-third day the heart was normal.

CASE 8.—Jessie C—, æt. 18, admitted October 29th, 1867. Her first attack of rheumatic fever. Eleven days before admission she had pains in her limbs; four days before, she was obliged to go to bed. On the day of admission complained of pain in her thighs, knees, ankles, and left arm. Appetite bad; tongue red in the centre and furred at the sides; temperature 100·4, pulse 100, respiration 24. Ordered 1 oz. mint-water every four hours, $\frac{1}{4}$ grain morphia at bedtime. Milk and beef-tea for diet.

30th, second day.—Temperature 101, pulse 92, respiration 24; was in great pain; perspired very much.

31st, third day.—Temperature 101·4, pulse 100, respiration 32.

November 1st, fourth day.—Was in more pain, which was great in left leg; redness and swelling in left wrist; perspired a great deal; urine acid, contained no albumen, sp. gr. 1021. Temperature—

102 morning. Pulse 76. Respiration 24.

101·8 evening. „ 72. „ 32.

Ordered $\frac{1}{2}$ grain opium twice a day to relieve the great pain.

2nd, fifth day.—Unable to move in bed; in great pain. Temperature—

101·4 morning. Pulse 98. Respiration 22.

102 evening. „ 108. „ 30.

3rd.—Temperature 102·2, pulse 108, respiration 28. Ordered $\frac{1}{2}$ oz. castor oil.

4th, seventh day.—Temperature—

101·8 morning. Pulse 102. Respiration 24.

102·8 evening. „ 100. „ 20.

5th, eighth day.—Suffered great pain. Temperature—

102·4 morning. Pulse 104. Respiration 20.

102·3 evening. „ 120. „ 32.

Ordered 1 grain opium every four hours.

6th, ninth day.—Temperature 102, pulse 116, respiration 30.

7th, tenth day.—Great pain in shoulder; less pain in legs; perspired freely. Temperature—

102·2 morning. Pulse 108. Respiration 36.

102·4 evening. „ 112. „ 32.

8th, eleventh day.—She complained very much of pain of her joints. Temperature—

103 morning. Pulse 120. Respiration 30.

102·4 evening. „ 112. „ 28.

Ordered 1 grain opium twice a day. Temperature remained at 100 until November 14th, the seventeenth day, when the pain was much less. Temperature—

99 morning. Pulse 72. Respiration 20.

99 evening. „ 80. „ 22.

15th, eighteenth day.—Temperature—

98 morning. Pulse 80. Respiration 18.

98·4 evening. „ 80. „ 18.

17th, twentieth day.—Was free from pain; temperature normal; appetite returning.

27th, thirtieth day.—Had had no return of the pain; appetite was good; tongue clean; skin cool; was anxious to get up.

December 5th.—She was quite well and discharged. The acute symptoms had undoubtedly ceased on the nineteenth or twentieth day.

The total duration of acute symptoms, including eleven days before admission, was thirty-one days.

Condition of heart.—On the day of admission a systolic bruit was heard. On the third day there was a harsh bruit at the base; cardiac dulness reached as high as the second interspace; systolic bruit was heard over the base. On the tenth day this bruit was heard also at the apex. On the thirty-first day, November 28th, the dulness was normal, first sound feeble, second sound unduly marked, but there was no abnormal bruit.

CASE 9.—Rachel L—, æt. 12, admitted into the London

Hospital October 29th, 1867. Six weeks before admission she was laid up a fortnight with pain in her limbs; subsequently she improved; the pain afterwards returned, and she was very weak. On the day of admission she was very anæmic-looking and had little pain in her joints. On the second day of admission temperature 101, pulse 102, respiration 38. On the third day the temperature was 101, pulse 102; the tongue was slightly coated, and she had pain in both knees. On the fifth day she was free from pain, the temperature was normal, and she continued to do well. The acute symptoms in this case had terminated by the fifth day. The arthritis was not severe. The total duration of the acute symptoms, including the days she was ill before admission into the hospital, could not be calculated.

State of the heart.—The cardiac dulness was increased and reached as high as the second costal cartilage. Over the base a thrill was felt, and a superficial creaking sound accompanied both sounds of the heart, apparently the result of pericarditis. There was a systolic bruit at the apex on admission, and when she was convalescent there was a well-marked systolic bruit over the apex of the heart which was conducted along the axilla.

CASE 10.—Annie A—, æt. 15, admitted October 25th, 1867. Her first attack of rheumatic fever. She had suffered from pain in her knees and back ten days before admission. She was confined to bed only two days before admission. The day she entered the hospital the temperature was 102·4, pulse was 128, respiration 28. She had pain in several joints. Her tongue was furred, the urine was acid and its specific gravity was 1035. Ordered a mixture containing a little coloured syrup and water every four hours.

26th, second day.—Temperature—

101·6 morning. Pulse 128. Respiration 32.

102·4 evening. „ 120. „ 34.

27th, third day.—Temperature—

101 morning. Pulse 116. Respiration 28.

101·4 evening. „ 120. „ 28.

28th, fourth day.—Temperature—

101 morning. Pulse 116. Respiration 20.

102·6 evening. „ 129. „ 28.

Ordered 1 grain opium to be taken at bedtime.

29th, fifth day.—Temperature—

103 morning. Pulse 120. Respiration 30.

101 evening. „ 120. „ 36.

30th, sixth day.—Pain in both hands. Temperature—

101·4 morning. Pulse 120. Respiration 28.

100·6 evening. „ 116. „ 32.

31st, seventh day.—Temperature—

101·4 morning. Pulse 112. Respiration 30.

102 evening. „ 116. „ 24.

November 1st, eighth day.—In no pain; her limbs felt stiff. Ordered $\frac{1}{2}$ oz. castor oil. Temperature—

101·2 morning. Pulse 96. Respiration 22.

100 evening. „ 112. „ 20.

2nd, ninth day.—Felt better; in no pain, except a little in right shoulder; urine scanty, acid, sp. gr. 1032. Temperature—

101 morning. Pulse 112. Respiration 20.

100·4 evening. „ 112. „ 24.

3rd, tenth day.—Temperature—

98·6 morning. Pulse 112. Respiration 32.

100·2 evening. „ 110. „ 28.

4th, eleventh day.—Temperature—

99·6 morning. Pulse 120. Respiration 30.

99·8 evening. „ 96. „ 24.

5th, twelfth day.—She had been free from pain three days; her appetite was good; she did not perspire, and her tongue was clean. Sp. gr. of urine 1026. Temperature—

98 morning. Pulse 88. Respiration 26.

99 evening. „ 96. „ 20.

7th, fourteenth day.—In no pain; appetite good. Temperature—

98 morning. Pulse 80. Respiration 20.

99·6 evening. „ 88. „ 28.

She continued to do well and had no return of pain.

13th, twentieth day.—Out of bed.

On 27th, thirty-fourth day of admission, discharged.

In this case the acute symptoms had completely disappeared on the twelfth day. The total duration of acute symptoms, including the time that she was ill before coming into the hospital, might be calculated at twenty-two days, or, perhaps, more correctly speaking, at thirteen days.

Condition of the heart.—On admission a systolic bruit was heard over the base of the heart; apex beat diffused. On the 30th October it was still heard. November 1st, a systolic bruit was heard under the left nipple. When discharged the murmur was still heard at the apex and at the angle of the left scapula.

CASE 11.—Annie D—, æt. 14, was admitted into the London Hospital October 25th, 1868. Her first attack of rheumatic fever. Her illness commenced three days before admission with pain in her right leg. The day before admission she was compelled to lie up. The day she came into the hospital there was pain in both knees and shoulders; the knees were red and swollen. On the second day the temperature was 101·2, pulse 124, respiration 32. On the third day the temperature was 99 and 99·8, pulse 104, respiration 24. On the fourth day she was in less pain and temperature was normal. On the seventh day she was free from pain; her tongue was clean; the temperature was normal; the urine was slightly acid, its specific gravity 1019. After this she rapidly improved.

Here the acute symptoms had ceased on the seventh day, and the total duration of acute symptoms, including three days before admission, was ten days.

Condition of the heart.—There was a systolic bruit at the base on admission and when discharged from the hospital.

CASE 12.—Henry K—, æt. 17, admitted into the London Hospital January 11th, 1868. His first attack of rheumatic fever. His illness commenced three weeks before admission with pain in his limbs. On the day of admission he had

pain and swelling in the right wrist and shoulder; perspiring freely; temperature 100·5, pulse 112, respiration 20. Three days after this he was free from pain. Temperature 98·8, pulse 84, respiration 16, and he continued to do well.

Condition of the heart.—On the 13th January, the third day of admission (the state of the heart is not mentioned in the report-book until the 13th), the heart's impulse was unduly marked and a bruit was heard over the apex.

16th.—The murmur was heard over the base and apex, but very faintly heard over the apex.

20th.—No abnormal sound was heard over the heart.

The acute symptoms had ended in this case on the third day of admission, and the total duration of the rheumatic symptoms, calculating the twenty-one days before admission, was twenty-four days.

CASE 13.—Sarah B—, æt. 16, admitted into the London Hospital January 10th, 1867. Her first attack of rheumatic fever. Four days before admission had pains in her thighs, which extended to her knees and feet.

On the 11th and 12th, the second and third days of admission, there were no decided rheumatic symptoms. There was no visible affection in any joint; she could stand and move about without any apparent pain or discomfort.

13th, the fourth day of admission.—There was much pain and slight swelling in the ankles.

14th, fifth day.—The affection of the joints was still more marked.

17th, eighth day.—Pain in both wrists, and on the left side.

18th, ninth day.—Pains in both elbows, no pain in any other joint; skin hot and dry; respiration 48, pulse 120.

19th, tenth day.—Pain in both wrists; urine copious, lithates, sp. gr. 1035, acid and scanty; perspired freely.

20th, eleventh day.—Great pain in the region of the heart. Not much pain in her joints. Temperature 102·8, respiration 48, pulse 120.

22nd, thirteenth day.—Almost free from pain. Tempera-

ture 102.5, respiration 52, pulse 126. Urine 18 oz. in twenty-four hours, sp. gr. 1029, loaded with lithates. She continued much the same, the temperature a little over 102, the pulse about 114, and respiration about 40. One day free from pain, the next day pain in all her joints.

30th, twenty-first day.—In no pain; urine 20 oz. in twenty-four hours, sp. gr. 1020, with lithates, and her temperature had fallen to 98. She continued to improve.

February 2nd, twenty-fourth day.—Her temperature was normal, and had remained so since the 30th January. Urine 23 oz. in twenty-four hours, sp. gr. 1015. From this time she steadily improved, and was discharged cured.

On the twenty-first day of admission the acute symptoms are calculated to have ended. The total duration of the acute symptoms, including the four days before admission, was twenty-five days.

Condition of the heart.—On the day of admission there was no abnormal bruit, but the first sound was prolonged and very feeble. The cardiac dulness was normal. On the sixth day after admission, and two days after the rheumatic affection of the joints became well marked, a faint systolic bruit was heard all over the cardiac region, and the cardiac dulness was slightly increased. On the eighth day of admission the cardiac dulness was increased and a harsh to-and-fro murmur was heard over and about the apex of the heart. On the ninth day the cardiac dulness reached as high as the second interspace. The impulse was diffused all over the cardiac region, and a to-and-fro murmur was heard. On the eleventh day a faint to-and-fro murmur was heard all over the cardiac region. There was dulness. The tactile vocal fremitus was distinct. There were bronchophony, bronchial breathing and fine crepitation during deep inspirations over the lower portion of the left chest posteriorly. At this period there was well-marked pneumonia and pericarditis. On the thirteenth day the to-and-fro murmur was less distinct. The dulness, bronchial breathing, and bronchophony were very distinct over the lower part of left lung. On the fourteenth day the heart's sounds were normal. On the sixteenth day the

heart's sounds were normal, and the bronchial breathing and the bronchophony were not so distinct. - On the seventeenth day the heart's sounds were normal, and the bronchial breathing and bronchophony were still heard. On the twentieth day of admission no abnormal sounds of the heart; coarse crepitation over the lower part of the left lung. On the twenty-first day the physical signs over the left lung were much less distinct, and they gradually disappeared. When this patient was discharged no abnormal sounds were heard over the region of the heart or lungs.

The acute symptoms terminated in these cases respectively on the 11th, 11th, 12th, 4th, 8th, 6th, 15th, 20th, 5th, 12th, 7th, 21st, and 3rd day. The average duration of the acute symptoms, therefore, in the thirteen cases was ten days.

In the first series of cases, under the care of Dr. Gull, treated for the most part with mint-water only, which we have published in vol. xi, 3rd series of 'Guy's Hospital Reports,' 1865, the average duration of the acute symptoms was 8·5 days.

In the second series, published in vol. xii, 3rd series of the 'Guy's Hospital Reports' of the year 1866, the average duration of the acute symptoms was 9 days.

And in this our third series of cases, as we have stated above, the average duration was 10 days.

There is, therefore, a difference of one day and a half only betwixt the three series of cases, the average of these three being 9·1 days.

This, we believe, will usually be found to be about the length of time that the acute symptoms generally extend over in cases of rheumatic fever, where there is no severe heart disease.

In the third series of cases, as we have just stated, the average duration of the acute symptoms was calculated at 10 days, whereas in our first series of cases it was 8·5 days. This difference may be explained when we state that much greater care was taken in estimating the duration of the acute symptoms in the third series of cases than in the first. In the third series the temperature was

taken every morning and evening, and until this was found to be normal the acute symptoms were not considered to have ceased. It not unfrequently happened that the tongue was clean and the patient was free from pain, but the temperature was higher than normal; in such cases, guided by the thermometer, we have concluded that the acute symptoms had not terminated. Whereas in the first and second series of cases, where the thermometer was not used, when the tongue was clean, the skin felt cool, and the patient was free from pain, the acute symptoms were regarded as having ceased. Had the temperature been taken in the first and second class of cases, we believe the average duration of the acute symptoms would have been about 10 days instead of 8·5 days.

The total duration of the acute symptoms, including the time that the patient was ill before coming into the hospital, was respectively 19, 15, 18, 9, 9, 14, 28, 31, 22, 10, 24, and 25 days, and the total duration of the acute symptoms—that is, from their commencement to their cessation—was, on an average, 19 days.

We now proceed to ask—Is the duration of rheumatic fever longer when it is treated on the expectant plan, or when it is treated by drugs? We very much regret that, owing to the arrangement of Dr. Dickinson's paper (*vide* Royal Medical and Chirurgical Society's 'Transactions,' vol. xlv, on "The Treatment of Rheumatic Fever,") we could not compare his cases with our own. In Dr. Garrod's cases (Royal Med. and Chir. Soc. 'Transactions,' vol. xxxviii), treated by large doses of alkali, the male patients were, on an average, in the hospital 6·2 days before the acute symptoms subsided, and females were 7·3 days before the acute symptoms subsided. The average of the two was 6·75 days.

In Dr. Herbert Davies' cases (*vide* 'London Hospital Reports,' vol. i), treated by blisters, the duration of the acute symptoms, while the patients were in the hospital, was, on an average, 8·4 days.

When, however, we take the thermometer as a guide, we find in Dr. Herbert Davies' cases that, although the patients were free from pain, and the joint symptoms had also sub-

sided, on an average, in 8·4 days, yet the temperature of the body was not normal until, on an average, 9·5 days.

In Dr. G. Owen Rees' cases ('Guy's Hospital Reports,' vol. xii, 3rd series, 1866), treated by lemon-juice, the duration of the acute symptoms in the hospital was 6·8 days.

And under the expectant treatment the duration of the acute symptoms in the hospital was 9·1 days.

To give this evidence more briefly, under the full alkaline treatment the average duration was . 6·75 days.

Lemon-juice ditto . 6·8 „

Blister treatment ditto . 8·4 „

Expectant treatment ditto 9·1 „

There was, therefore, a difference of a little more than 2 days in favour of the full alkaline and lemon-juice treatment, and the average in the blister and expectant treatment was almost equal.

When, however, the duration of the acute symptoms was tested still more accurately by the aid of the thermometer, we find that under the blister treatment it was, on an average, 9·5, under the expectant treatment 10 days.

The total duration of the acute symptoms, including the time the patients were ill before and after going into the hospital, was—

Under the full alkaline treatment . 13·5 days.

Under the blister treatment (not estimating by aid of the thermometer) was . 15·7 days.

When the acute symptoms were estimated by the thermometer the duration was (under the blister treatment) 17·27 days.

Under the expectant treatment . . 19·0 days.

These differences are very slight, so much so that they appear to us to argue that one plan of treatment (as regards shortening the duration of the rheumatic process) has no great advantage over the other. Probably it will be admitted that no great importance should be attached to the fact that under one plan of treatment the duration of the acute symptoms was a day or two less, for every physician is well aware how difficult it is to fix the period when the

acute symptoms have just ceased, so as not to be a day before or after the time when they have really subsided; for patients differ very much in estimating their own pain, and we therefore have to deal with all the uncertainty of subjective symptoms. It can, perhaps, be readily understood that one practitioner might consider a patient had lost all his acute symptoms to-day, whilst another practitioner, guided by the fact that the tongue was almost though not quite clean, that the patient was practically although not absolutely free from pain in the joints, might consider that the acute symptoms had not quite subsided, and then allow another day or two to pass over before he decided that the acute symptoms had ceased. Bearing this in mind, it appears to us that we cannot attach much importance to this difference of one or two days.

We therefore submit that there is no evidence to show conclusively that alkalies, lemon-juice, or blisters, curtail the duration of the rheumatic process. And we agree with Dr. Barclay, when (*vide* his work on 'Gout and Rheumatism,' page 32), speaking of the administration of alkali in rheumatic fever, he states, "We are not yet in a position to say that it exercises any influence in curtailing the duration of the disease."

With respect to lemon-juice also, we are not satisfied that it has any such power.

We have witnessed the trial of Dr. Herbert Davies' blister treatment in a few cases which have occurred in Guy's Hospital, under the care of Dr. Wilks and the late Dr. Barlow, also in cases which have occurred in the London Hospital, and it has appeared to us to relieve very much the pain and sufferings of the patient in some cases, but it has not appeared to curtail the rheumatic process. We noticed that, although the temperature of the body fell during the application of the blisters, yet it did not immediately return to its normal standard. It remained higher than normal for some days after the pain had abated, nor in several cases did the tongue become clean, the appetite return, nor the urine fall in specific gravity, as usually happens when the rheumatic

process is really over. Moreover, Dr. Davies' cases do not show, when compared with those here recorded, any decided evidence in favour of the blister treatment beyond the fact that the blisters appear to have given much and speedy relief to the pain in the joints. We therefore regard the application of blisters as a valuable agent in relieving the sufferings of the patient, but we are unable to say that it curtails the duration of the rheumatic process.

Our cases appear to us to teach that the rheumatic process runs its course under the expectant plan as favorably as under the treatment by drugs.

While it has been admitted by those who advocate the treatment of rheumatic fever by alkalies, that large doses of such drugs do not curtail the duration of the disease, nor bring very great relief to the patient, yet it is stated, to quote the words of Dr. Barclay, "that it does most incontestably prevent inflammation of the heart," and he further states "that the proportion of heart ailments is very much reduced by the employment of the alkaline treatment."

We now propose to inquire what evidence there is to support this statement?

We may now pass on to show what was the state of the heart in those cases where there was well-marked disease of that organ. In thirteen of these twenty-five cases there were physical signs indicating organic disease of the heart, particulars of which may be briefly given as follows:—It may be noticed that in every one of these cases the heart was more or less organically diseased when the patient was admitted into the hospital. In five of these thirteen cases there were physical signs of pericarditis on admission, and in three of the five there was a mitral bruit when the patients were discharged from the hospital. In a fourth a systolic aortic bruit was heard, and in the fifth case the heart was healthy when the patient was discharged. In one patient the first sound was prolonged at the base on admission, subsequently pericarditis and pneumonia supervened, and the heart was healthy when the patient was discharged from the hospital. In three patients there was a mitral murmur

on admission and when discharged from the hospital. In one there was an aortic obstructive bruit on admission and when discharged. In one the cardiac dulness was normal; the first sound was prolonged at the base on admission, and a mitral bruit existed when the patient was discharged. In one case there was a systolic bruit at the base on admission, and at the apex when discharged. In one case the apex beat was unduly marked, and there was præcordial pain on the day after admission; a new-leather-creaking bruit subsequently developed itself, and the patient died.

Besides these cases, in which there was well-marked organic disease of the heart, there were twelve others in which there was no evidence of organic disease of the heart, but there was in nearly all more or less evidence of functional disturbance of this organ, or of changes in the blood producing so-called anæmic bruits. And in one or two cases the physical signs were such as might be said to indicate slight disease in the pericardium. These indications were, however, so slightly marked that it would be a matter of dispute as to whether they did or did not indicate morbid changes in the tissues of the heart. Not one of these patients had disease of the heart when discharged from the hospital.

The particulars of the twelve cases may be briefly summed up as follows:—In one case there was no bruit, but the heart's action was unduly marked. In one case there was a systolic, apparently an anæmic, bruit at the base on admission and when discharged. In one case the first sound was prolonged on the day of admission; on the seventh day a bruit was heard over the base, which afterwards entirely disappeared. In one the apex beat was unduly marked on admission, and on the third day a bruit was heard, and the heart was healthy when discharged. In three cases the cardiac dulness was somewhat increased, and a systolic bruit was heard over the base when admitted, but it was indistinct when the patient was discharged in one of the three cases, and there was a systolic bruit at the base on admission, and the heart was healthy when discharged, in two of the three cases. In

one case there was a systolic bruit at the base on admission, and the cardiac dulness was somewhat increased on the third day, and the heart was healthy when the patient was discharged. In one case a bruit was heard at the apex of the heart, which afterwards disappeared. In one a new-leather-creaking sound was heard, and the heart was healthy when discharged. In one the first sound was prolonged and the dulness increased on admission; afterwards a bruit was heard, and the heart was healthy when the patient was discharged. In one there was a bruit at the base on admission, and the first sound was prolonged when the patient was discharged from the hospital.

These details concerning the heart show that when rheumatic inflammation attacks the heart, and is allowed to run its natural course, the pericardium may become very extensively diseased, and yet the valves of the heart may escape, but in other cases in which there is pericarditis the valves may become diseased and rendered incompetent. Nor does it follow, because the pericarditis is severe and extensive, that the valves of the heart will certainly become diseased, but in the majority of cases in which there was severe pericarditis the valves did become involved.

Again, the cardiac dulness may be somewhat increased and extend higher than normal, and the first sound may be prolonged at the base. This prolonged first sound may develop into a bruit, and be followed by well-marked mitral disease. In other cases there may be a similar increase of cardiac dulness, and a new-leather-creaking sound may be heard at the base of the heart, and this may subside and the heart remain healthy. Further, a prolonged first sound may be heard over the base of the heart, and this may develop into a systolic bruit and afterwards entirely disappear, leaving the heart healthy. A slight bruit may be heard over the apex of the heart, and afterwards it may completely disappear and the heart remain healthy.

It is instructive to notice that there was more or less modification of the heart sounds during some period of the attack in every case except in one. In only one case did

the heart sounds remain perfectly healthy throughout the entire disease. But in eleven cases the abnormal sounds were such as are not usually considered to indicate any organic affection of that organ, and these abnormal sounds subsequently totally disappeared, and there was no evidence of cardiac disease when the patients were discharged from the hospital.

We now proceed to ask the question—If the heart was healthy when the patients were admitted into the hospital, was it common for it to become diseased while the patients were under treatment by mint-water in the hospital?

Our cases show that when patients free from heart affection were admitted into the hospital suffering from rheumatic fever, and the disease was allowed to run its natural course uninfluenced by drugs, it was a very rare thing for the heart to become diseased while the patients were under treatment in the hospital.

In only one case where the sounds of the heart were healthy on admission did the heart become organically diseased while the patient was under treatment. This was a peculiar case (*vide* Case 8, 'Guy's Hospital Reports,' vol. xii, 3rd series, p. 528), such a one as is very rarely met with. The peculiarity of this case was that the patient died suddenly and there was nothing found on post-mortem examination to account for her death, and the only evidence of heart disease was a very small quantity of recent lymph at the base of the heart.

The patient was a female, æt. 25, who was admitted into Guy's Hospital under the care of Dr. Wilks. When first admitted she was suffering a good deal; she was in great distress, very restless and anxious. She complained very much of distress about her chest, and when questioned as to whether she had any pain there she answered, "It feels so tight, I can hardly breathe." On the day of admission Dr. Sutton listened to her heart and heard no abnormal sound; two days afterwards a new-leather-creaking sound was heard over the base of the heart.

This case was such an exceptional one that it might be

fairly placed on one side, but even in this case there was some evidence of cardiac mischief within forty-eight hours after she was admitted into the hospital, as shown by the great distress the patient was suffering about the chest. And clinical experience has shown that severe distress and pain in the chest may be the first indication of pericarditis, and may precede the physical signs and exist without there being any physical signs to reveal the inflammation of the serous membrane.

In another case the indications of heart affection were very slight indeed when the patient was admitted into the hospital. A girl, æt. 16, was under the care of Dr. H. G. Sutton in the London Hospital (*vide* Case 13, Sarah B—, given in this paper). On the day of admission she stated that she had pain in her ankles, but she could stand and walk apparently without any difficulty, and there was no redness, tenderness, or swelling of the joints. The cardiac dulness was normal, but the first sound of the heart over the base was prolonged and feeble. There was no bruit. She had, she said, felt pain in her legs for four days before coming into the hospital. After she had been in the hospital two days the rheumatic symptoms developed themselves, and after five days the cardiac dulness was slightly raised and a systolic bruit was faintly heard all over the cardiac region. After six days the heart's action was rapid, the apex beat was unduly marked, and the systolic bruit was still heard. After seven days a to-and-fro murmur was heard over the base of the heart. From this time the pericarditis was well marked, and severe pneumonia also supervened. The patient had no evidence of heart disease when she left the hospital.

Unlike what usually happens with hospital patients suffering from rheumatic fever, the last-named patient was in the hospital from the commencement to the termination of her attack of rheumatic fever. When she was admitted the rheumatic process was so slightly marked that it was doubtful as to whether there was anything the matter with her. During the first two days that she was in the hospital there were no objective signs of rheumatic fever. After this time

the rheumatic process gradually developed, and the heart disease was developed simultaneously with the joint affection.

Ordinarily patients suffering from rheumatic fever do not enter the hospital until the disease has been going on some days, usually about six or eight days, and in a great number of cases the heart has already become diseased before entering the hospital. If, however, the patients were in the hospital at the commencement of the disease, we should probably more frequently observe the heart become diseased while they were under treatment. One patient, therefore, that was in the hospital from the first to the last of the rheumatic fever ought not to be compared with the cases that have suffered from rheumatic fever for some days before coming under observation.

Our cases of rheumatic fever therefore show that of twenty-five patients suffering from a first attack of this disease, twelve had organic affection of the heart on admission into the hospital.

In one patient who was in the hospital from the commencement of the attack there was some, but very doubtful, evidence of heart disease on admission into the hospital, and pericarditis supervened while under treatment. In another patient there were no physical signs of heart disease on admission, but there was great distress and pain in the chest. Forty-eight hours after admission there were indications of pericarditis in this case. In eleven cases there was no organic disease of the heart on admission, and none supervened while the patients were under treatment.

Our cases further show that where there was no evidence of organic disease of the heart on admission into the hospital, the heart was free from all evidence of disease when the patients were discharged from the hospital. Not one of our patients came into the hospital without heart disease and left the hospital with evidence showing that the heart was diseased.

The experience gained in these cases of rheumatic fever which were allowed to run their natural course uninfluenced by drugs tends to prove that, if patients are admitted into

the hospital suffering from a first attack of rheumatic fever, and the heart is not diseased on admission, it will very rarely become organically diseased while the patient is under treatment.

It is rare for the heart to become diseased when the disease is allowed to run its course uninfluenced by drugs, and, judging from the evidence before the profession, it is also rare for the heart to become diseased when rheumatic fever is treated by drugs.

In support of the latter statement we may be permitted to bring forward the following evidence:—Dr. Garrod, speaking of the alkali treatment in rheumatic fever (*vide* Royal Medical and Chirurgical Society's 'Transactions,' vol. xxxviii, p. 151) says, "I cannot help thinking that an effect is likewise produced on the cardiac disease to a very considerable and important extent." In no case did the affection of the heart ensue after the patient had been more than forty-eight hours under the influence of medicine.

The statistics of Dr. Dickinson (*vide* Med. and Chir. Soc. 'Trans.,' vol. xlv, p. 350) show that in forty-eight patients subject to the full alkaline treatment only one had pericarditis commencing after treatment had begun.

Dr. Herbert Davies, speaking of the treatment of rheumatic fever by blisters (*vide* 'London Hospital Reports,' vol. i, p. 300), says, "In no case where the heart was sound at the time of admission did any organic lesion subsequently develop itself."

Dr. G. O. Rees also has informed us that when cases of rheumatic fever were treated with lemon-juice it was exceedingly rare to find the heart become diseased during treatment, provided it was healthy when the patient was admitted into the hospital.

Dr. Basham, in his paper on "The Treatment of Rheumatic Fever by Nitrate of Potash" (Med. and Chir. Soc. 'Trans.,' vol. xxxi, p. 14) gives, in a tabular form, an account of seventy-nine cases of this disease. One of these cases was probably not rheumatic fever, making the number seventy-eight cases, all of which were treated by nitrate of potash.

In sixty-one cases there was no heart disease. In twelve cases there was no heart disease on admission, and in only five cases did the heart become diseased while under treatment.

The experience, therefore, of these several physicians in cases of rheumatic fever is, that it is rare for the heart to become affected while patients are under treatment in the hospital; that in nearly all the cases where there was heart disease it had commenced before the patient was admitted into the hospital.

It is difficult to understand how remedies so different in their nature and in their actions should all work in such a manner as to bring about the same result—how the administration of large doses of alkali should produce the same result as the application of blisters to the joints.

It may be said that the operation of alkalies, lemon-juice, and blisters, are different, but that they all accomplish the same end by either neutralising or eliminating the poison or the *materies morbi* of rheumatic fever. But can we reason in this way without begging the question? For it is not proved that there is a poison or *materies morbi* to be either eliminated or neutralised, and if we propose a theory to explain how these different remedies destroy the theoretical *materies morbi* it appears to us that we are only making a theory to explain a theory.

Seeing, therefore, that the heart rarely became affected when the rheumatic fever was not treated by drugs, we are compelled to ask the question—What evidence is there to show that any of the different plans of treatment which are advocated have any decided power in preventing the heart becoming diseased?

It appears to us that there is not sufficient evidence to prove that any of the systems of treatment have power to prevent the heart becoming diseased; and in concluding that the treatment has prevented the heart becoming diseased, physicians have overlooked the fact that there might be no tendency at the time that the patients were under treatment for the heart to become diseased, and our cases show that the good results which have been attributed to the influence of

the remedies also occurred when no special remedies were used.

Our cases, therefore, tend to teach that these good results were due, not to the drugs, but to the natural course of the disease.

Before we conclude that it was something connected with the natural course of the disease which prevented the heart becoming diseased while the patients were under treatment in the hospital, it is necessary to ask, was there not something common to all these different plans of cure which prevented the heart becoming diseased, and was this something not present in the blister, in the alkali, the acid, and in the expectant plan of treatment?

The only things, perhaps, which were common to all these modes of treatment were rest and regulated diet.

Then the question arises—Are rest and regulated diet sufficient to explain this immunity from heart disease? It appears to us that they are not sufficient. For patients suffering from a primary attack of rheumatic fever have had well-marked symptoms of that disease for some days before coming into the hospital, and the heart has been organically diseased on admission, yet these patients have rested and lain in bed some days and even weeks before entering the hospital. Again, other patients have not rested while they were suffering pain in their joints and had other symptoms of rheumatic fever, and yet on admission into the hospital with a primary attack of rheumatic fever the heart has been found to be free from disease.

It would appear, therefore, that rest and regulated diet are not alone sufficient to explain why the heart rarely becomes affected when the patients are under treatment in the hospital.

We shall now pass on to point out evidence which tends to show that when the heart becomes diseased in rheumatic fever it does so at an early stage of the disease, and if the heart does not become diseased during the first week of the rheumatic fever it rarely does so afterwards.

In order to do this it is necessary to show, when patients labouring under a primary attack of rheumatic fever were

admitted into the hospital with heart disease, that such disease had set in during the first week of the fever.

We now beg to bring forward brief particulars of cases which show that the heart becomes involved during the early part of the attack.

In the case of a female, æt. 16 (*vide* Case 13 recorded in this paper), admitted into the London Hospital January 10th, 1867, four days previous to admission she had some pain in her ankles. During the first and second days of admission there were no decided rheumatic symptoms; she said her ankles were painful, but she could move freely in bed and could stand and walk about. Her tongue was clean, her skin cool, and it was very doubtful whether there were any indications of approaching rheumatic fever. Respecting the heart, there was no bruit, but the first sound was prolonged and feeble. The cardiac dulness was normal. On the third and fourth days of admission there were more decided rheumatic symptoms, pain in the left wrist and right ankle. On the fifth day the prolonged first sound mentioned above was found to have developed into a systolic bruit; this was heard all over the cardiac region. The cardiac dulness was slightly increased. On the eighth day of admission, and five days after the rheumatic symptoms were well marked, the systolic bruit was replaced by a harsh to-and-fro murmur, and the cardiac dulness was increased.

The second case was that of a female, æt. 18 (*vide* Case 5 recorded in this paper), who was admitted into the London Hospital January 28th, 1868. This was her first attack of rheumatic fever. Two days before admission she did not feel quite well, but there were no decided rheumatic symptoms until the day before she entered the hospital. On the second day of the rheumatic attack there was evidence showing that the heart was involved. The cardiac dulness reached as high as the third rib, and there was diminished resonance as high as the second rib.

The visible impulse was unduly marked over the third interspace close to the sternum; the first sound was prolonged and almost equal to a bruit, also prolonged over the apex.

On the fifth day of admission the prolonged first sound resembled a faint bruit. On the sixth day it had become developed into a marked bruit, which was audible both over the base and apex of the heart; this murmur subsequently became developed into a well-marked mitral bruit, which was present when she left the hospital.

In a third case, a female, æt. 14 (*vide* Case 11 in this paper) was admitted into the London Hospital October 25th, 1868. This was her first attack of rheumatic fever, and she stated that she had never been ill before. The rheumatic symptoms appeared three days before admission. October 26th, the second day of admission and fifth of the rheumatic process, there was evidence showing that the heart was involved. The heart's impulse was diffused and visible in the second and third interspace; the cardiac dulness reached as high as the second costal cartilage and as low as the sixth rib; a well-marked, apparently an aortic, systolic bruit was heard over the second interspace; this murmur was heard when the patient was discharged from the hospital.

The fourth case,¹ a patient under the care of Dr. Andrew Clark in the London Hospital, was a female, æt. 20, who was admitted into the hospital March 2nd, 1868. She stated that this was her first attack of rheumatic fever; that she was well three days before admission. Two days before admission she was taken with pain in the left ankle, which extended the following day into the opposite ankle. She was admitted into the hospital two days after the rheumatic symptoms first appeared, that is, on the third day of seizure, and there was, at that time, proof of the heart being involved. A systolic mitral bruit was heard at the apex of the heart, which continued and was distinctly heard on the twenty-third day of admission.

The fifth case, a female, æt. 18 (*vide* Case 7, 'Guy's Hospital Reports,' vol. xii, 3rd series, p. 525), was admitted into Guy's Hospital December 20th. The rheumatic process commenced five days before entering the hospital. On the day of admission a bruit-de-cuir-neuf was heard over the

¹ This case is not reported in the paper.

base of the heart, and subsequently a decided systolic bruit became developed.

In a sixth case, a male, æt. 23 (*vide* Case 3 in the same number of 'Guy's Hospital Reports,' p. 515), was admitted into Guy's Hospital November 3rd. It was his first attack of rheumatic fever. On the seventh day of the rheumatic process there was a systolic mitral bruit at the apex of the heart, which persisted and remained when the patient was discharged from the hospital.

Referring back to these six cases, we find that two patients were admitted two days after the rheumatic process commenced, one three days afterwards, one four days, another five days, and lastly one seven days after the rheumatic process set in. In all these six cases there were physical signs showing that the heart was involved.

Of twenty-two patients¹ suffering from a first attack of rheumatic fever, thirteen came into the hospital during the first week of the disease. In one patient the rheumatic fever had commenced five days before admission into the hospital, in another six days before admission, in a third three days before admission, and in the remaining cases the disease had been going on five, six, five, four, five, six, one, six, three, five days before the patient entered the hospital. The remaining nine of the twenty-two patients had been ill longer than a week when they were admitted into the hospital.

Every one of these thirteen patients on the day of admission into the hospital was found to have organic disease of the heart, and the heart disease had commenced before the patients entered the hospital. In these cases, therefore, the heart must have become diseased before the second, third, fourth, or fifth day of the rheumatic fever; in all these cases the heart was diseased before the patient had suffered from rheumatic fever a week.

¹ Many of these are our own cases reported in vols. xi and xii of the 'Guy's Hospital Reports,' 3rd series. Others taken from Dr. Garrod's cases (*vide* Royal Med.-Chir. Soc. 'Trans.,' vol. xxxviii). These twenty-two patients have been selected simply because they were suffering from a primary attack of rheumatic fever and the heart was diseased on their admission into the hospital.

It appears to us, therefore, that these cases prove that in rheumatic fever the heart is very liable to become diseased during the early stage of that disease, and that it very frequently does become diseased during the first week of the malady.

Further, two cases showed that the heart had become diseased as early as the third day, and in one case that it had become diseased two days after the rheumatic process had set in.

Having shown that the heart frequently becomes diseased during the first week of the rheumatic fever, we now proceed to inquire if it is common for it to become diseased during the second, third, or subsequent week of rheumatism.

To prove that a patient who has escaped heart affection in the first week of rheumatic fever is not liable under any circumstances to suffer from heart disease in the second or subsequent weeks would require a very large experience, and such an opinion ought to be supported by a very large number of cases. A few cases may, however, be sufficient to show that there is no great tendency for the heart to become diseased during the second and later weeks of rheumatic fever.

We have particulars of twelve cases of well-marked rheumatic fever, seven of which occurred in the London and five in Guy's Hospital. In not one of these cases was there any organic disease of the heart when the patients entered the hospital; eight of these twelve cases entered the hospital during the first week of the rheumatic fever. Four of them entered the hospital five days after the rheumatic symptoms first appeared, two six days after, one four days, and one three days after. The remaining four of the twelve cases did not enter the hospital until after the rheumatic fever had been going on eight, eight, twelve, and twenty-one days respectively.

These eight patients were placed under the mint-water treatment; the rheumatic fever was, therefore, allowed to run its natural course.

All these patients were admitted into the hospital during the first week of the fever free from organic disease of the

heart, and while they were under treatment during the second and subsequent weeks of the seizure no heart disease came on. In not one instance did the patient escape heart disease during the first week of the rheumatic fever and contract such disease during the second or later weeks of the fever.

If the heart were not diseased in the first week it did not become diseased in the second or in the later weeks of the rheumatic fever.

It will be instructive now to inquire if what we have stated respecting the heart becoming diseased in the first and not in the second week of rheumatic fever in anyway explains why the heart did not become diseased when patients were in the hospital and treated by alkalies, lemon-juice, blisters, or by the expectant plan.

The explanation would, according to what we have shown, appear to be that patients suffering from rheumatic fever are not, as a rule, admitted into the hospital until the period when the heart is liable to become diseased has passed over. Experience teaches that the heart becomes diseased at the very outset of the rheumatic fever, before the patients enter the hospital, and if the patients pass the first few days of the rheumatic fever without the heart becoming involved then they do not contract heart disease during the later part of the rheumatic attack.

Some patients treated by mint-water entered the hospital as early as the third, fourth, and fifth day of the rheumatic fever without any heart disease, and the heart did not become diseased while the patients were under treatment.

Some patients treated by blisters or by alkalies, entered the hospital as early as the third, fourth, and fifth day, without any heart disease, and the heart did not become diseased while the patients were under treatment. The same thing occurred, therefore, when the disease was allowed to run its natural course as occurred when the disease was treated by blisters or alkalies.

In our cases treated by mint-water the rheumatic fever commenced, on an average, eight days before the patients entered the hospital.

In Dr. Herbert Davies' cases treated by blisters, the rheumatic fever commenced, on an average, 7·9 days before the patients entered the hospital.

In Dr. Garrod's cases treated by alkali, the rheumatic fever commenced, on an average, about eight days before the patients entered the hospital.

So that Dr. Davies', Dr. Garrod's, and our own cases entered the hospital, on an average, about eight days after the rheumatic fever had commenced—that is, in the early part of the second week of the rheumatic fever. And the same thing was observed in Dr. Davies', Dr. Garrod's, and in our own cases, that if the patient's heart had not become diseased in the first week of the rheumatic fever, that is, before coming into the hospital, it was very rare for it to become diseased during the second or later weeks of the rheumatic fever while the patients were under treatment in the hospital.

However much influence we may consider that the blisters or alkalies had, in preventing the heart becoming diseased, this fallacy was avoided in our own cases, for no drugs having any influence were used; and as the same result followed when drugs were not given as when they were given, it is difficult indeed, to believe that the drugs were the means of preventing the heart becoming diseased.

We therefore respectfully submit, that the reason why the heart did not become diseased when patients were treated by blisters or by alkalies, was that the patients were not placed under the treatment until the period when the heart was liable to become diseased had passed over. For there is evidence tending to show that it is part of the natural course of rheumatic fever for the heart to become diseased during the first few days of the fever, and if it does not then become diseased it rarely does so in the second, third, or later weeks of the rheumatic fever.

We would here venture to observe that in acute rheumatism care is requisite in determining during the first week, whether the heart is really diseased or not. Some physicians have considered that an unduly-marked apex-beat, or an excited or an irregular action of the heart, indicated in rheumatic

fever, that the heart was becoming diseased. In some cases, there may be no auscultatory signs to show that the pericardium is becoming involved, but there may be great præcordial pain, and sometimes pain between the shoulders, and these symptoms precede the auscultatory signs some hours or a day or two.

In the commencement of the heart disease, there may be no loud bruit, but merely a prolonged first sound, or a slightly-marked new-leather creaking bruit over the base of the heart. Both these sounds may be very easily overlooked, and yet experience shows that such a prolonged first sound, not unfrequently in the course of a few days, becomes a well-marked mitral bruit, and the new leather creaking bruit becomes a well-marked to and fro pericardial bruit. It also occasionally happens that the first sound is prolonged at the apex and continues so until the patient is almost, if not, actually convalescent, and then this prolonged sound becomes a decided mitral murmur.

In bringing this paper to a close, we beg leave to thank the members of the Society for their kind attention, and venture to hope that these cases, few as they are, may be found not only interesting, but also instructive. We also beg to thank Mr. George Mackenzie, and Mr. McCarthy, of the London Hospital, who have greatly assisted Dr. Sutton in recording the cases.

We may now briefly sum up the various conclusions arrived at in this paper as follows :—

1. That rheumatic fever uncomplicated with any very severe heart affection tends to run its course in nineteen days, calculating from the time the rheumatic symptoms first set in to their termination.
2. That the average duration of the acute symptoms while patients were in the hospital and free from very severe heart complications was nine days.
3. That in nearly all the cases referred to in this paper, there was some modification of the heart's sounds during some period of the rheumatic attack.
4. That severe pericarditis complicated with pneumonia

may subside and leave the heart healthy, so far as we can test by our present means, without the aid of any drugs.

5. That when the heart was healthy on admission into the hospital, it was very rare for it to become organically diseased while the patients were under treatment by mint water, or, in other words, when the rheumatic fever was allowed to run its natural course.

6. That the evidence before the profession shows that the heart very rarely became diseased while the patients were under treatment (in the hospitals). And that this was the case when the patients were treated by alkalies, lemon juice, or by blisters to the joints.

7. That there is not sufficient evidence before the profession, to prove that any of the advocated remedies have power to prevent the heart becoming diseased.

8. That in concluding that the treatment has prevented the heart becoming diseased, we have overlooked the fact that there might be no tendency at the time the patients were under treatment for the heart to become diseased.

9. That in rheumatic fever the tendency is for the heart to become diseased during the first few days of the fever, and should it escape the early days of the disease, there is each day a lessening tendency to its implication; hence, our cases would appear to show that if at the end of the first week of the rheumatic fever the heart is free from disease, there is little or no tendency for it to become diseased during the later weeks, provided patients are treated by rest and regulated diet.

10. That the reason why the heart did not become diseased when rheumatic fever was treated by alkalies or blisters to the joints is to be attributed not to the influence of the drugs but to the natural course of the disease. For the patients did not come under treatment, until the rheumatic fever had been going on some days, and until the period when the heart was most liable to become diseased had passed over.

We ought not to conclude the paper without expressing our convictions that, hitherto the investigation into the therapeutics of the rheumatic process have been rendered all

but valueless by the deficiency in preliminary data. There are as yet no reliable facts in the pathology of the process; we are ignorant of the essential state of which the rheumatic symptoms are an expression.

At present, therefore, as regards treatment, our cases seem to show that we are limited to a careful regimen of the patient. Rest, mechanical and physiological. Rest in the very outset of the disease. We ought not to wait until the rheumatic process has become well developed in the joints. For it appears to us that the heart becomes involved simultaneously with the joints, and by rest we hope to quiet the heart's action, and so prevent it becoming diseased.

To regulate the temperature. To moderate excessive skin function by sponging the surface of the body with tepid water. To allay pain by placing the patient in an easy position, and sometimes by opiates. To sustain the organic nerve power by light diet, and occasionally by small doses of alcohol. To procure rest by the simplest means, especially avoiding such movements of the body as may excite the circulation. In fine, to place the patient in a physiological state of mean rest, if it may be so expressed, of the nervous, the circulatory, the muscular, and the digestive systems.

To do this fully will tax often all our energies, and we should not be just to ourselves if we did not here say that to attain this has been the object of our greatest care. It required often more consideration than was requisite for prescribing any supposed appropriate drug treatment. We are therefore, at present, advocates of the exactest treatment of the patient under acute rheumatism, though we may doubt the value of so-called specific drugs.